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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,696	02/11/2002	Harumi Hatano	SIW-032	4403
959	7590	09/01/2004	EXAMINER	
LAHIVE & COCKFIELD, LLP. 28 STATE STREET BOSTON, MA 02109			HODGE, ROBERT W	
		ART UNIT	PAPER NUMBER	
		1746		

DATE MAILED: 09/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/073,696	HATANO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Robert Hodge	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 11 February 2002 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 02-11-02

- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "18" and "18a" have both been used to designate the membrane. In figure 1 the lead line for reference numeral "18" should be an arrow generally designating the entire membrane and not just the overlap "18a". Reference characters "18" and "12" have both been used to designate the membrane electrode assembly. In figure 5 the line for "18" should contact the membrane to properly designate it. Figures 11 and 12 should properly be labeled to designate them as prior art. In the detailed description on page 12, 3<sup>rd</sup> paragraph, there is a reference to a fuel gas connecting passage 66, but reference numeral 66 does not appear in the drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Inoue et al.

The applied reference has common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

In reference to claim 1 Inoue et al US Patent 6,699,613 (herein referred to as Inoue et al) clearly teaches “a method for producing a fuel cell unit including a membrane electrode assembly formed by a solid polymer electrolyte membrane and a pair of electrodes located at both sides of the solid polymer electrolyte membrane, and a pair of separators which hold the membrane electrode assembly” (column 1, first paragraph), and further teaches “applying liquid sealant to at least one of a marginal portion of the solid polymer electrolyte membrane, said marginal portion being not covered by the pair of electrodes when assembled, and a surface of each of the pair of

separators, said surface corresponding to the marginal portion of the solid polymer electrolyte membrane; holding the solid polymer electrolyte membrane with the pair of separators to perform temporary assembling; and solidifying the liquid sealant while maintaining a temporary assembling state" (column 24 line 47). Claim 2 is also anticipated by Inoue et al "liquid sealant is also applied to at least one of an outer periphery of said membrane electrode assembly, in the vicinity of a communication-hole which penetrates though said separator, and an outer periphery of a cooling medium passage of said separators, liquid sealant is also applied to at least one of an outer periphery of said membrane electrode assembly, in the vicinity of a communication-hole which penetrates through said separator and an outer periphery of a cooling medium passage of said separators" (column 4, line 8 and line 37) also noted in figures 1, 2 and 29. As well as claim 3 "said liquid sealant is applied to at least one of groove portions formed on said separators" (column 24, line 57, claim 2), and claim 4 that "said liquid sealant is made of a thermosetting type fluoride material or a thermosetting type silicone" (column 9, line 24). It is also clear from figures 18, 20 and 21 that the sealant indicated by "S" is substantially circular (re: claim 5).

In reference to claim 6 Inoue et al clearly teaches "A method for producing a fuel cell stack having a plurality of stacked fuel cell units including a membrane electrode assembly formed by a solid polymer electrolyte membrane and a pair of electrodes located at both sides of the solid polymer electrolyte membrane, and a pair of separators which hold the membrane electrode assembly" (column 4, line 51, paragraph 7) and further teaches "applying liquid sealant to at least one of a marginal portion of the

solid polymer electrolyte membrane, said marginal portion being not covered by the pair of electrodes when assembled, and a surface of each of the pair of separators, said surface corresponding to the marginal portion of the solid polymer electrolyte membrane; holding the solid polymer electrolyte membrane with the pair of separators to perform temporary assembling; and solidifying the liquid sealant while maintaining a temporary assembling state" (column 24 line 47) and goes on to teach "stacking a predetermined number of the fuel cell units so as to be placed between a pair of end plates (column 4 line 52, 64 and 65) as well as "applying a compression load in a direction reducing the distance between the end plates to produce a fuel cell stack (column 20, line 11, also shown in figures 14 and 15). Claim 7 is also anticipated by Inoue et al "liquid sealant is also applied to at least one of an outer periphery of said membrane electrode assembly, in the vicinity of a communication-hole which penetrates through said separator, and an outer periphery of a cooling medium passage of said separators, liquid sealant is also applied to at least one of an outer periphery of said membrane electrode assembly, in the vicinity of a communication-hole which penetrates through said separator and an outer periphery of a cooling medium passage of said separators" (column 4, line 8 and line 37) also noted in figures 1, 2 and 29. As well as claim 8 "said liquid sealant is applied to at least one of groove portions formed on said separators" (column 24, line 57, claim 2), and claim 9 that "said liquid sealant is made of a thermosetting type fluoride material or a thermosetting type silicone" (column 9, line 24). It is also clear from figures 18, 20 and 21 that the sealant indicated by "S" is substantially circular (re: claim 10).

In reference to claim 11 Inoue et al clearly teaches "a fuel cell unit including a membrane electrode assembly formed by a solid polymer electrolyte membrane and a pair of electrodes located at both sides of the solid polymer electrolyte membrane, and a pair of separators which hold the membrane electrode assembly" (column 1, first paragraph), and further teaches "applying liquid sealant to at least one of a marginal portion of the solid polymer electrolyte membrane, said marginal portion being not covered by the pair of electrodes when assembled, and a surface of each of the pair of separators, said surface corresponding to the marginal portion of the solid polymer electrolyte membrane; holding the solid polymer electrolyte membrane with the pair of separators to perform temporary assembling; and solidifying the liquid sealant while maintaining a temporary assembling state" (column 24 line 47). Claim 12 is also anticipated by Inoue et al "liquid sealant is also applied to at least one of an outer periphery of said membrane electrode assembly, in the vicinity of a communication-hole which penetrates through said separator, and an outer periphery of a cooling medium passage of said separators, liquid sealant is also applied to at least one of an outer periphery of said membrane electrode assembly, in the vicinity of a communication-hole which penetrates through said separator and an outer periphery of a cooling medium passage of said separators" (column 4, line 8 and line 37) also noted in figures 1, 2 and 29. As well as claim 13 "said liquid sealant is applied to at least one of groove portions formed on said separators" (column 24, line 57, claim 2), and claim 14 that "said liquid sealant is made of a thermosetting type fluoride material or a thermosetting type

silicone" (column 9, line 24). It is also clear from figures 18, 20 and 21 that the sealant indicated by "S" is substantially circular (re: claim 15).

In reference to claim 16 Inoue et al clearly teaches "a fuel cell stack having a plurality of stacked fuel cell units including a membrane electrode assembly formed by a solid polymer electrolyte membrane and a pair of electrodes located at both sides of the solid polymer electrolyte membrane, and a pair of separators which hold the membrane electrode assembly" (column 4, line 51, paragraph 7) and further teaches "applying liquid sealant to at least one of a marginal portion of the solid polymer electrolyte membrane, said marginal portion being not covered by the pair of electrodes when assembled, and a surface of each of the pair of separators, said surface corresponding to the marginal portion of the solid polymer electrolyte membrane; holding the solid polymer electrolyte membrane with the pair of separators to perform temporary assembling; and solidifying the liquid sealant while maintaining a temporary assembling state" (column 24 line 47) and goes on to teach "stacking a predetermined number of the fuel cell units so as to be placed between a pair of separator plates 14 and 16 (end plates) (column 4 line 52, 64 and 65) as well as "applying a compression load in a direction reducing the distance between the end plates to produce a fuel cell stack (column 20, line 11, also shown in figures 14 and 15). Claim 17 is also anticipated by Inoue et al "liquid sealant is also applied to at least one of an outer periphery of said membrane electrode assembly, in the vicinity of a communication-hole which penetrates though said separator, and an outer periphery of a cooling medium passage of said separators, liquid sealant is also applied to at least one of an outer periphery of said

the vicinity of a communication-hole which penetrates through said separator and an outer periphery of a cooling medium passage of said separators" (column 4, line 8 and line 37) also noted in figures 1, 2 and 29. As well as claim 18 "said liquid sealant is applied to at least one of groove portions formed on said separators" (column 24, line 57, claim 2), and claim 19 that "said liquid sealant is made of a thermosetting type fluoride material or a thermosetting type silicone" (column 9, line 24). It is also clear from figures 18, 20 and 21 that the sealant indicated by "S" is substantially circular (re: claim 20).

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:
  - a. U.S. Pat No 5,509,942 to Dodge teaches a process to assemble a fuel cell assembly as described in U.S. Pat No 5458989
  - b. U.S. Pat No 5,458,989 to Dodge teaches a fuel cell assembly having electrodes with an electrolytic around the electrodes
  - c. U.S. Pat No 5,336,570 to Dodge teaches a fuel cell assembly/stack, with layered electrolytic members between electrodes, support structure for electrolytic structure, temporary restraining means engaging electrodes and electrolytic member, a liquid sealant used on an outer periphery, a means of curing said sealant and an airtight envelope being formed

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Hodge whose telephone number is (571) 272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RWH

8-30-04

MICHAEL BARR  
PRIMARY EXAMINER

